IN THE CLAIMS

1. (Currently Amended) A sol-gel coating material comprising

(A) an acrylate copolymer solution comprising a reaction product of:

a1) at least one (meth)acrylic ester ~~that is substantially free of acid groups~~,

a2) at least one ethylenically unsaturated monomer that carries at least one hydroxyl group per molecule ~~and is substantially free of acid groups~~, and

a3) at least one ethylenically unsaturated monomer that carries per molecule at least one acid group that can be converted into a corresponding acid anion group;

(B) a stock coating material comprising a hydrolysis and condensation product of at least one hydrolyzable silane of the general formula I

$$SiR_4 \qquad (I)$$

wherein:

R = hydrolyzable groups, hydroxyl groups, and nonhydrolyzable groups with the proviso that there is at least one hydrolyzable group present; and

(C) a sol comprising a hydrolysis, condensation, and complexing product of the at least one hydrolyzable silane of the general formula I and at least one hydrolyzable metal compound of the general formula II

$$MR_n \qquad (II)$$

wherein:

M = aluminum, titanium, or zirconium,

R = hydrolyzable groups, hydroxyl groups, and nonhydrolyzable groups with the proviso that there is at least one hydrolyzable group present, and

n = 3 or 4.

2. (Previously Presented) The sol-gel coating material of claim 1 wherein the sol-gel coating material is aromatics free.

3. (Previously Presented) The sol-gel coating material of claim 1, wherein the sol-gel coating material comprises, based on its total amount, 5 to 40% of the acrylate copolymer solution, 5 to 40% of the stock coating material, and 1 to 15% of the sol.

4. (Previously Presented) The sol-gel coating material of claim 1, wherein the sol-gel coating material has a solids contents of the acrylate copolymer solution (A), the stock coating material (B), and the sol (C) in a weight ratio of (A):(B):(C) of (0.5 to 5):(1 to 10):(1).

5. (Previously Presented) The sol-gel coating material of claim 1, wherein:
the nonhydrolyzable groups R are at least one of an alkyl group; an alkenyl group; alkynyl group; and an aryl group; and
the hydrolyzable groups R are at least one of a hydrogen atom; an alkoxy group; an alkoxy-substituted alkoxy group with 3 to 20 carbon atoms; an acyloxy groups; and an alkylcarbonyl group.

6. (Previously Presented) The sol-gel coating material of claim 5, wherein
the hydrolyzable groups R are at least one of a methoxy group, an ethoxy group, a n-propoxy group, an i-propoxy group, a n-butoxy group, a sec-butoxy group, a beta-methoxyethoxy group, an acetoxy group, a propionyloxy group, and an acetyl group; and
the nonhydrolyzable groups R are at least one of a methyl group, an ethyl group, a propyl group, a butyl group, a vinyl group, a 1-propenyl group, a 2-propenyl group, a butenyl group, an acetylenyl group, a propargyl group, phenyl, and naphthyl.

7. (Previously Presented) The sol-gel coating material of claim 1, wherein the nonhydrolyzable group R contains at least one functional group.

8. (Previously Presented) The sol-gel coating material of claim 1, wherein the sol is complexed by organic compounds that form chelate ligands.

9. (Previously Presented) The sol-gel coating material of claim 1, wherein the sol-gel coating material is a sol-gel clearcoat material.

10. (Previously Presented) A method comprising applying the sol-gel coating material of claim 1 to a substrate to produce a mar-resistant sol-gel coating.

11. (Previously Presented) The method of claim 10, wherein the mar-resistant sol-gel coating is a cured at least one coat paint system.

12. (Previously Presented) The method of claim 10, wherein the mar-resistant sol-gel coating is one of an automotive OEM coating, an automotive refinish coating, an industrial coating, a container coating, a plastic coating, and a furniture coating.

13. (Previously Presented) A process comprising

(i) applying at least one coat of a paint system to a primed or unprimed substrate,

(ii) applying the sol-gel coating material of claim 1 atop the paint system, and

(iii) curing the sol-gel coating material.

Claims 14-16 (Canceled)

17. (Previously Presented) A sol-gel coating comprising the sol-gel coating material of claim 1.

18. (Previously Presented) A substrate comprising at least one sol-gel coating of claim 17.

19. (Previously Presented) The sol-gel coating material of claim 7, wherein the at least one functional group is at least one of an epoxide group, an amino group, an olefinically unsaturated group, a mercapto group, an isocyanate group, and a reaction product of any of the preceding with further reactive compounds.

20. (Previously Presented) The sol-gel coating material of claim 1, wherein at least two of:

a. the sol-gel coating material is aromatics free;

b. the sol-gel coating material comprises, based on its total amount, 5 to 40% of the acrylate copolymer solution, 5 to 40% of the stock coating material, and 1 to 15% of the sol;

c. the sol-gel coating material has a solids contents of the acrylate copolymer solution (A), the stock coating material (B), and the sol (C) in a weight ratio of (A):(B):(C) of (0.5 to 5):(1 to 10):(1);

d. the nonhydrolyzable groups R are at least one of an alkyl group; an alkenyl group; alkynyl group; and an aryl group; and the hydrolyzable groups R are at least one of a hydrogen atom; an alkoxy group; an alkoxy-substituted alkoxy group with 3 to 20 carbon atoms; an acyloxy groups; and an alkylcarbonyl group;

e. the nonhydrolyzable group R contains at least one functional group;

f. the sol is complexed by organic compounds that form chelate ligands; and

g. the sol-gel coating material is a sol-gel clearcoat material.

21. (Previously Presented) The sol-gel coating material of claim 20, wherein at least one of:

a. the nonhydrolyzable groups R are at least one of an alkyl group; an alkenyl group; alkynyl group; and an aryl group; and the hydrolyzable groups R are at least one of a hydrogen atom; an alkoxy group; an alkoxy-substituted alkoxy group with 3 to 20 carbon atoms; an acyloxy groups; and an alkylcarbonyl group; and

b. the at least one functional group is at least one of an epoxide group, an amino group, an olefinically unsaturated group, a mercapto group, an isocyanate group, and a reaction product of any of the preceding with further reactive compounds.

22. (Previously Presented) A sol-gel coating comprising the sol-gel coating material of claim 20.

23. (Previously Presented) A substrate comprising at least one sol-gel coating of claim 22.

24. (Previously Presented) A method comprising applying the sol-gel coating material of claim 20 to a substrate.

25. (Previously Presented) The method of claim 13, wherein at least one of:

a. the sol-gel coating material is aromatics free;

b. the sol-gel coating material comprises, based on its total amount, 5 to 40% of the acrylate copolymer solution, 5 to 40% of the stock coating material, and 1 to 15% of the sol;

c. the sol-gel coating material has a solids contents of the acrylate copolymer solution (A), the stock coating material (B), and the sol (C) in a weight ratio of (A):(B):(C) of (0.5 to 5):(1 to 10):(1);

d. the nonhydrolyzable groups R are at least one of an alkyl group; an alkenyl group; alkynyl group; and an aryl group; and the hydrolyzable groups R are at least one of a hydrogen atom; an alkoxy group; an alkoxy-substituted alkoxy group with 3 to 20 carbon atoms; an acyloxy groups; and an alkylcarbonyl group;

e. the nonhydrolyzable group R contains at least one functional group;

f. the sol is complexed by organic compounds that form chelate ligands;

g. the sol-gel coating material is a sol-gel clearcoat material;

h. the applied sol-gel coating material is cured by irradiation with intermediate IR radiation;

i. the at least one coat paint system has been completely cured; and

j. the at least one coat paint system is one of an automotive OEM coating, an automotive refinish coating, an industrial coating, a container coating, a plastic coating, and a furniture coating.

26. (Previously Presented) The method of claim 25, wherein at least one of:

a. the nonhydrolyzable groups R are at least one of an alkyl group; an alkenyl group; alkynyl group; and an aryl group; and the hydrolyzable groups R are at least one

of a hydrogen atom; an alkoxy group; an alkoxy-substituted alkoxy group with 3 to 20 carbon atoms; an acyloxy groups; and an alkylcarbonyl group; and

b. the at least one functional group is at least one of an epoxide group, an amino group, an olefinically unsaturated group, a mercapto group, an isocyanate group, and a reaction product of any of the preceding with further reactive compounds.

27. (Previously Presented) A sol-gel coating material produced by the process of claim 13.

28. (Previously Presented) A substrate comprising at least one sol-gel coating of claim 27.

29. (Previously Presented) A sol-gel coating material produced by the process of claim 25.

30. (Previously Presented) A substrate comprising at least one sol-gel coating of claim 29.

31. (Previously Presented) A sol-gel coating material produced by the process of claim 26.

32. (Previously Presented) A substrate comprising at least one sol-gel coating of claim 31.